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NOTIFICATION OF THE RECORDING
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To:

PRINS, A., W.
Vereenigde
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PAYS-BAS

Date of mailing (day/month/year) 15 June 2000 (15.06.00)	IMPORTANT NOTIFICATION
Applicant's or agent's file reference P10088PC00	
International application No. PCT/NL99/00685	International filing date (day/month/year) 09 November 1999 (09.11.99)

1. The following indications appeared on record concerning:		
<input type="checkbox"/> the applicant	<input type="checkbox"/> the inventor	<input checked="" type="checkbox"/> the agent
<input type="checkbox"/> the common representative		
Name and Address OTTEVANGERS, S., U. Vereenigde Octrooibureaux Nieuwe Parklaan 97 NL-2587 BN The Hague Netherlands	State of Nationality	State of Residence
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The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer C. Cupello Telephone No.: (41-22) 338.83.38
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PATENT COOPERATION TREATY

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NOTIFICATION OF ELECTION

(PCT Rule 61.2)

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Date of mailing (day/month/year) 15 June 2000 (15.06.00)	
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International filing date (day/month/year) 09 November 1999 (09.11.99)	Priority date (day/month/year) 09 November 1998 (09.11.98)
Applicant POST, Paul, Wessel et al	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:

05 April 2000 (05.04.00)

☐ in a notice effecting later election filed with the International Bureau on:2. The election ☒ was☐ was not

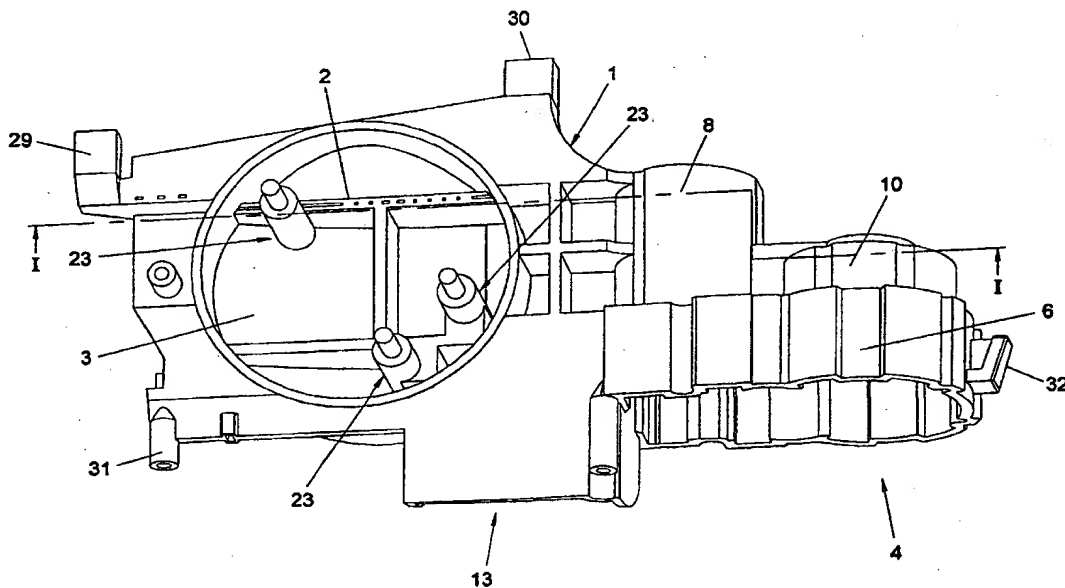
made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

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INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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<p>(21) International Application Number: PCT/NL99/00685</p> <p>(22) International Filing Date: 9 November 1999 (09.11.99)</p> <p>(30) Priority Data: 1010513 9 November 1998 (09.11.98) NL</p> <p>(71) Applicant (for all designated States except US): IKU HOLDING MONTFOORT B.V. [NL/NL]; Waardsedijk Oost 9, NL-3417 XJ Montfoort (NL).</p> <p>(72) Inventors; and (75) Inventors/Applicants (for US only): POST, Paul, Wessel [NL/NL]; Hofstraat 9, NL-8021 CD Zwolle (NL). NIJMEIJER, Marco, Raymond, Maria [NL/NL]; Bilderdijkstraat 63 Bis, NL-3532 VD Utrecht (NL). OENEMA, Onno, Dirk [NL/NL]; Goethelaan 25, NL-3533 VP Utrecht (NL).</p> <p>(74) Agent: OTTEVANGERS, S., U.; Vereenigde Octrooibureaux, Nieuwe Parklaan 97, NL-2587 BN The Hague (NL).</p>	<p>(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).</p> <p>Published With international search report.</p>	

(54) Title: ELECTRICALLY CONTROLLED MIRROR FOR A MOTOR VEHICLE



(57) Abstract

An electrically controlled mirror for a motor vehicle, provided with a support to be mounted on a vehicle for a mirror housing having a mirror plate movable in this mirror housing and electromechanical means for adjusting the mirror housing relative to the support and the mirror plate relative to the mirror housing, and with any means for accommodating one or more other functions, such as mirror heating, electrochrome dimming of light falling on the mirror plate, various lighting functions, remote control means, etc. in the mirror housing. The mirror housing comprises one single build-up element on which said means are provided, into which build-up element one multi-core electric conductor for the functions to be realized in the mirror housing by said means is integrated.

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Title: Electrically controlled mirror for a motor vehicle.

The present invention relates to an electrically controlled mirror for a motor vehicle, provided with a support to be mounted on a vehicle for a mirror housing having a mirror plate movable in said mirror housing and
5 electromechanical means for adjusting the mirror housing relative to the support and the mirror plate relative to the mirror housing, and with any means for accommodating one or more other functions, such as mirror heating, electrochrome dimming of light falling on the mirror plate, various
10 lighting functions, remote control means, etc. in the mirror housing.

The current development in the field of mirrors for motor vehicles is directed to accommodating a large number of functions in these mirrors. Apart from the primary mirror
15 functions, i.e. the electric control of the mirror housing relative to its support on the vehicle, and of the mirror plate relative to the mirror housing, there is the need to accommodate other functions in the mirror housing as well, in particular a mirror heating, the electrochrome dimming of the
20 light falling on the mirror plate, for instance if a vehicle coming from behind has its lights adjusted incorrectly and shines too much in one's own mirrors, all types of lighting functions, such as for instance an indicator or a downwardly shining lamp (puddle light) and even remote control means
25 for, for instance, unlocking the vehicle remotely. Such multiplicity of functions does not only require all kinds of mechanical constructional adaptations with regard to the components that have to be accommodated in the mirror housing for realizing the various functions, but also requires all
30 kinds of electronics and a relatively large cable tree that should be introduced into the mirror housing.

However, against this increase of the number of functions that are to be accommodated in a mirror, is the aim
to reduce the system costs and to increase the quality and

reliability of the product, which requirements are usually difficult to match.

The object of the invention is to provide an electrically controlled mirror for a motor vehicle, in which, in a constructional sense, the possibility of realizing a large number of functions in the mirror housing is offered in a simpler manner, while in addition, the system costs are limited and the quality and reliability of the product are increased.

To that end, in accordance with the invention, the electrically controlled mirror as described in the opening paragraph is characterized in that the mirror housing comprises one single build-up element on which said means are provided, in which build-up element a reinforcement element is provided for increasing the rigidity and strength of the build-up element.

Whereas formerly, the means for adjusting the mirror housing relative to the support, the means for adjusting the mirror plate relative to the mirror housing, and the means for realizing the desired other functions in the mirror housing had to be incorporated into the mirror housing as separate components, the invention provides one single build-up element on which the various components, whose individual housings have been removed, can be directly provided; in other words, the housing of at least a number of these components is of common design. By forming the build-up element as one whole and manufacturing it from a plastic, a type of this common housing is obtained that has favorable manufacturing costs. The reinforcement element is preferably made of metal and is in particular insert-molded in the plastic build-up element in wholly or partially folded condition. This further contributes to the strength of the build-up element. Although the reinforcement element may also be formed from other materials, for instance a glass fiber-reinforced plastic, the use of metal offers the great advantage that the reinforcement element can be designed as a

multi-core electric conductor for the functions to be realized in the mirror housing by means of the above-mentioned means. In other words, the electric cable work for the various components can also be integrated into the build-up element, so that in the mirror housing no separate cables need to be passed to the various components.

In particular because of the plastic construction, various spaces can be provided in the build-up element during molding. For instance, the build-up element may have a space accommodating an electronics unit for controlling the various functions. Thus, the electronics of the separate components can be concentrated in one space to enable an integrated design of these electronics, such as for instance with a common microprocessor, by means of which the control of the various functions in the mirror housing can be realized.

Further, the build-up element may have a space for the means for adjusting the mirror plate relative to the mirror housing. These means may comprise, in a known manner, two motors, transmission members and spindles for rotating the mirror support having a mirror plate provided thereon about two mutually perpendicular axes. These means are normally secured on a mounting plate in a separate housing. However, in accordance with the invention, the mounting plate can be secured directly on the build-up element.

In a preferred embodiment, the build-up element has one space for both the electronics unit for controlling the various functions, and the means for adjusting the mirror plate relative to the mirror housing. The electronics unit for controlling the various functions comprises a printed circuit board which, preferably, is connected to said mounting plate or forms a whole therewith. In particular, at least a part of the electronics of the electronics unit may be located on the other side of the mounting plate where the means for adjusting the mirror plate relative to the mirror housing are provided.

Further, the build-up element may have a space in which, in cooperation with a space in a mounting base element in the support, the means for adjusting the mirror housing relative to the support are accommodated. Hence, both
5 elements surround said means, consisting of a motor and a transmission mechanism for rotating the mirror housing around a shaft in the support. By giving this shaft a hollow design, the cable work of the mirror can be passed therethrough from the vehicle and connected to the electric conductor
10 integrated into the build-up element.

It is further observed that in the build-up element, one or more further spaces for lighting means may be present. For instance, a lamp fitting may be directly provided in a space in the build-up element.

15 When all components have to be provided in the mirror housing as separate units, they will also be separately wired. This means for instance one cable having two cores for the means for adjusting the mirror housing relative to the support on the vehicle, one cable having six cores for the
20 means for adjusting the mirror plate relative to the mirror housing, one cable having two cores for a puddle light, one cable having three cores for the mirror heating and the electrochrome dimming, etc. Through the use of a common electronics unit, the number of cables can be reduced and,
25 when integrated into the build-up element, be limited to one strip-shaped conductor. In accordance with the invention, the number of cores in this strip-shaped electric conductor can be further limited; to this end, the electric conductor comprises an input conductor having two feed lines and at
30 least one data line. Over the data line or lines, digital serial information is passed on multiplex basis from the vehicle to the electronics unit and control signals are provided by this electronics unit over relevant cores in the electric conductor for controlling the various components in
35 the mirror housing.

In accordance with a further facet of the invention, the cable work of the mirror can be connected from the vehicle, via the space in the mounting base element in the support, to the electric conductor integrated into the build-up element. In this regard, a particularly simple connection is obtained when the connection of the cable work from the vehicle to the electric conductor extends through the shaft via which the mirror housing can rotate relative to the support on the vehicle. In a concrete embodiment, a connected is provided in said shaft, to which connector the cable work from the vehicle is connected, while the electric conductor comprises a plug which, when the build-up element is being slid over the mounting base element, is plugged into the connector. The connector with the cable work connected thereto from the vehicle can for instance be provided in said shaft by a bayonet joint. Of course, the connector may also be connected to the electric conductor and inserted into that part of the build-up element, for instance again by a bayonet joint, which is slid over the mounting base element, while during the sliding of the build-up element over the mounting base element, a plug at the end of the cable work coming from the vehicle is plugged into the connector.

As mentioned, the means for adjusting the mirror plate relative to the mirror housing may be provided on a mounting plate. In accordance with yet another facet of the invention, the space for these means may then comprise projecting, pin-shaped parts which form one whole with the build-up element and on which the mounting plate can be fixed by a clip connection. Such clip connection can in particular be obtained by a clip fixedly provided on the mounting plate.

In a specific embodiment, these pin-shaped parts comprise a widened portion and, adjacent their free ends, a narrowed portion, while the mounting plate slid over the narrowed portion is clamped between the upper edge of said widened portion and a cover element which is present for the drive means to be provided on the mounting plate for

adjusting the mirror plate, the cover element being secured by a clip connection. In the same manner as in the above-mentioned embodiment where the clip is fixedly provided on the mounting plate, the clip connection can here be obtained
5 by a clip fixedly provided on the cover element.

The invention will now be specified with reference to the accompanying drawings. In these drawings:

Fig. 1 is a side elevation of the build-up element according to the invention;

10 Fig. 2 shows the method in which the multi-core electric conductor is integrated into the build-up element;

Fig. 3 is an exploded view of the build-up element and the mounting base element meshing therewith; while

15 Fig. 4 shows the manner in which the mounting plate can be secured in the build-up element.

In the Figures, identical parts are denoted by identical reference numerals.

The Figures show from various sides the build-up element 1 according to the invention as it can be secured in
20 a mirror housing which can be rotatably attached to a support fixedly connected to a vehicle. This mirror housing has a mirror plate provided therein for movement, and also contains electromechanical means for adjusting the mirror housing relative to the support and the mirror plate relative to the
25 mirror housing.

The electromechanical means for adjusting the mirror housing relative to the support comprise a motor and a transmission mechanism engaging a shaft on the support; these means are in practice and also hereinafter referred to as
30 'power-fold unit'. The electromechanical means for adjusting the mirror plate relative to the mirror housing comprise two motors fixed on a mounting plate, an associated transmission mechanism and spindles for rotating the mirror plate about two mutually perpendicular axes around a pivot point, formed
35 by a ball joint provided between the mounting plate and the mirror plate; these means are in practice and also

hereinafter referred to as 'mirror actuator'. Such electromechanical means are known.

Further, various other functions can be accommodated in the mirror housing; in the present embodiment, means are present for realizing mirror heating, electrochrome dimming of light falling on the mirror plate and a 'puddle' lighting. These means, too, are all known per se.

As the present invention relates to the construction and positioning of all these means in the mirror housing rather than to the operation thereof, the operation will not be discussed any further, unless this is necessary for the explanation of the present invention.

The build-up element 1 is molded from a synthetic material, in particular from a hard type of plastic. Insert-molded in the build-up element 1 is a multi-core electric conductor 2 in the form of a strip. Fig. 2 depicts the build-up element 1, substantially viewed from the top side, with the upper portion thereof removed according to the line I-I in Fig. 1, to enable a top plan view of the electric conductor 2. The strip-shaped conductor, folded more than once, is integrated into the build-up element, as appears from Fig. 3, where the conductor 2, lifted from the build-up element 1, is shown. In particular, this Figure demonstrates that parts of the strip-shaped conductor are folded over in different manners, depending on the place in the build-up element where the relevant conductor parts are to be guided to. By arranging the conductor 2 in this manner, the rigidity and strength of the build-up element are moreover increased.

The build-up element 1 has various hollow spaces. For instance, a cylindrical space 3 is present both for the means for adjusting the mirror plate relative to the mirror housing, i.e. for the mirror actuator, and for the electronics unit for controlling the various functions. For that purpose, the mirror actuator and the electronics unit are mounted on a mounting plate, with the mirror actuator and a part of the electronics unit provided on one side, and the

other portion of the electronics unit provided on the other side of the mounting plate. The mounting plate is fixed adjacent the top side of the hollow space 3. The electric conductor 2 partly extends through this hollow space 3, as a result of which the connecting points of the separate cores of this conductor lie directly against the connections of the electronics unit on the mounting plate and the soldered or welded joints can readily be realized. This will be discussed in more detail hereinbelow.

There is further present a hollow space 4 for the means for adjusting the mirror housing relative to the support, i.e. for the power-fold unit 5. An edge 6 bounding this space at the bottom side thereof can be slid over a mounting base element 7 (see Fig. 3) rotatably mounted in the support which is to be fixed on a vehicle. The space that is formed by the hollow space 4 in the build-up element 1 and the hollow space in the mounting base element 7 after these two elements have been slid one into the other, comprises two portions, viz. a high portion 8 for the motor 9 of the power-fold unit 5 and a low portion 10 for the transmission mechanism 11 thereof. This transmission mechanism 11 engages a hollow central shaft 12 fixed on the support on the vehicle. Such transmission mechanism is described in detail in, for instance, International Patent Application WO 97/43144.

Further present in the build-up element 1 is a hollow space 13 in which a fitting for a puddle light 33 can be provided. This hollow space 13 can be shut off by a light-transmitting cover plate 34.

The strip-shaped multi-core electric conductor 2 as visible from the top in Fig. 2 comprises an input conductor 14 which in the exemplary embodiment shown comprises three cores, viz. two feed lines and one data line suitable for transmitting digital serial information on multiplex basis. When the mirror is being mounted on the vehicle, the input conductor 14 should be connected to the cable work extending

from the vehicle through the support of the mirror housing and in particular through the hollow shaft 12. Provided in this hollow shaft 12 is a connector for said cable work, to which connector the plug at the end of the input conductor 14 is connected when the build-up element 1 is being slid over the mounting base element 7. To that end, the three-core strip-shaped input conductor 14 extends through an opening in the top side of the build-up element 1 at the location of the top side of the low portion 10 of the hollow space 4, to the connection in the hollow shaft 12. The other end of the three-core input conductor 14 ends in the hollow space 3 for connection to the electronics unit on the mounting plate therein. Via an opening in the top side of the high portion 8 of the hollow space 4, two cores 15, 16 of the strip-shaped conductor 2 extend from this electronics unit to the motor of the power-fold unit 5. Further, via an opening in the top side of the build-up element 1, two cores 17, 18 extend from the electronics unit downwards behind the hollow space 3 to the hollow space 13 for the puddle light 33. Finally, three further cores 19, 20 and 21 are present which extend rightwards from the electronics unit in Fig. 2 and to which the connections for the mirror heating and the electrochrome dimming can be connected. Fig. 3 shows how the strip-shaped conductor 2 is split into different parts and how, folded in a specific manner, it is insert-molded in the build-up element during the manufacture thereof. When the electronics unit has been fixed in the hollow space 3, the ends of the ten cores of the strip-shaped conductor 2 project through the printed circuit board of the electronics unit and are fixedly soldered thereon to the relevant electronics components; see Fig. 4. Here, the printed circuit board forms a part of the mounting plate 22. However, it will be understood that the printed circuit board and the mounting plate can be constructed separately from each other, while they may actually be directly connected to each other.

During the molding of the build-up element 1, projecting pin-shaped parts 23 are formed at the same time. These pin-shaped parts have a widened portion 24 and, adjacent their free ends, a narrowed portion 25. Although the mounting plate 22 can be secured directly on these pin-shaped parts by a clip connection, with the mounting plate being slid over the narrowed portion 25 of the pin-shaped parts 23 and clamped between the top side of the widened portions 24 and the clips present therefor, while the clips may or may not further be fixedly mounted on the mounting plate, in the exemplary embodiment shown it is not the mounting plate 22 itself but a cover element 26 (see Figs. 3 and 4), present for the mirror actuator 27 to be provided on the mounting plate 22, that is secured by a clip connection 28, which can again be obtained by clips fixed on the cover element. As the mirror actuator is directly secured on the mounting plate in the hollow space 3, a separate actuator housing, which would be present if the mirror actuator were mounted in the mirror housing as a separate component, can be dispensed with.

Finally, it is observed that the build-up element 1 comprises a number of mounting lips 29-32, whereby the build-up element can be secured in a mirror housing.

The invention is not limited to the exemplary embodiment here described with reference to the Figures, but also relates to all kinds of modifications hereto, of course in so far as they fall within the protective scope of the following claims. For instance, instead of one, two data lines may be used, the number of cores in the strip-shaped conductor 2 may be extended if more functions have to be accommodated in the mirror, such as for instance an indicator, remote control means or an antenna system. Of course, for these provisions space must be created in the build-up element, so that the functions thus obtained need not be arranged in the form of a component which is to be separately mounted in the mirror housing, in a housing of its own and with its own cable work. Further, it will be

understood that the shape and size of the build-up element are determined by the number of functions to be accommodated in the mirror housing and the maximally acceptable size of the mirror housing; in the electronics unit itself, there
5 prove to be no limitations in practice.

Claims

1. An electrically controlled mirror for a motor vehicle, provided with a support to be mounted on a vehicle for a mirror housing having a mirror plate movable in said mirror housing and electromechanical means for adjusting the mirror housing relative to the support and the mirror plate relative to the mirror housing, and with any means for accommodating one or more other functions, such as mirror heating, electrochrome dimming of light falling on the mirror plate, various lighting functions, remote control means, etc. in the mirror housing, **characterized in that** the mirror housing comprises one single build-up element on which said means are provided, in which build-up element a reinforcement element is provided for increasing the rigidity and strength of the build-up element.
2. An electrically controlled mirror according to claim 1, characterized in that the build-up element forms one whole and is manufactured from a plastic, the reinforcement element being made of metal and insert-molded, in wholly or partially folded condition, in the plastic build-up element.
3. An electrically controlled mirror according to claim 2, characterized in that the reinforcement element forms a multi-core electric conductor for the functions to be realized in the mirror housing by said means.
4. An electrically controlled mirror according to any one of the preceding claims, characterized in that the build-up element has a space in which an electronics unit for controlling the various functions is accommodated.
5. An electrically controlled mirror according to any one of the preceding claims, characterized in that the build-up element has a space for the means for adjusting the mirror plate relative to the mirror housing.
6. An electrically controlled mirror according to any one of the preceding claims, characterized in that the build-up

element has one space for both the electronics unit for controlling the various functions and the means for adjusting the mirror plate relative to the mirror housing.

7. An electrically controlled mirror according to any one of the preceding claims, characterized in that the build-up element has a space in which, in cooperation with a space in a mounting base element in the support, the means for adjusting the mirror housing relative to the support are accommodated.
8. An electrically controlled mirror according to any one of the preceding claims, characterized in that the build-up element has one or more further spaces for lighting means.
9. An electrically controlled mirror according to any one of the preceding claims, characterized in that the electric conductor comprises an input conductor with two feed lines and at least one data line.
10. An electrically controlled mirror according to claim 9, characterized in that over the data line or lines, digital serial information is passed on multiplex basis from the vehicle to the electronics unit and control signals are provided by this electronics unit over relevant cores in the electric conductor for controlling the various components in the mirror housing.
11. An electrically controlled mirror according to any one of the preceding claims, characterized in that via the space in the mounting base element in the support, the cable work of the mirror can be connected from the vehicle to the electric conductor integrated into the build-up element.
12. An electrically controlled mirror according to claim 11, characterized in that the connection of the cable work from the vehicle to the electric conductor extends through the shaft via which shaft the mirror housing can rotate relative to the support on the vehicle.
13. An electrically controlled mirror according to claim 12, characterized in that in said shaft a connector is provided to which the cable work from the vehicle is connected and

that the electric conductor comprises a plug which, when the build-up element is being slid over the mounting base element, is plugged into the connector.

14. An electrically controlled mirror according to claims 5 and 6, characterized in that the means for adjusting the mirror plate relative to the mirror housing are provided on a mounting plate and that the space for these means comprises projecting, pin-shaped parts which form one whole with the build-up element and on which the mounting plate can be secured by a clip connection.

15. An electrically controlled mirror according to claim 14, characterized in that the clip connection is obtained by a clip fixedly provided on the mounting plate.

16. An electrically controlled mirror according to claim 14, characterized in that the pin-shaped parts comprise a widened portion and, adjacent the free end, a narrowed portion, the mounting plate which has been slid over the narrowed portion being clamped between the top edge of said widened portion and a cover element present for the driving means for adjusting the mirror plate, which driving means are to be provided on the mounting plate, the cover element being secured by a clip connection.

17. An electrically controlled mirror according to claim 16, characterized in that the clip connection is obtained by a clip fixedly provided on the cover element.

18. An electrically controlled mirror according to any one of claims 14-17, characterized in that the electronics unit for controlling the various functions is provided on the mounting plate.

19. An electrically controlled mirror according to claim 14, characterized in that at least a part of the electronics of the electronics unit is located on the other side of the mounting plate where the means for adjusting the mirror plate relative to the mirror housing are provided.

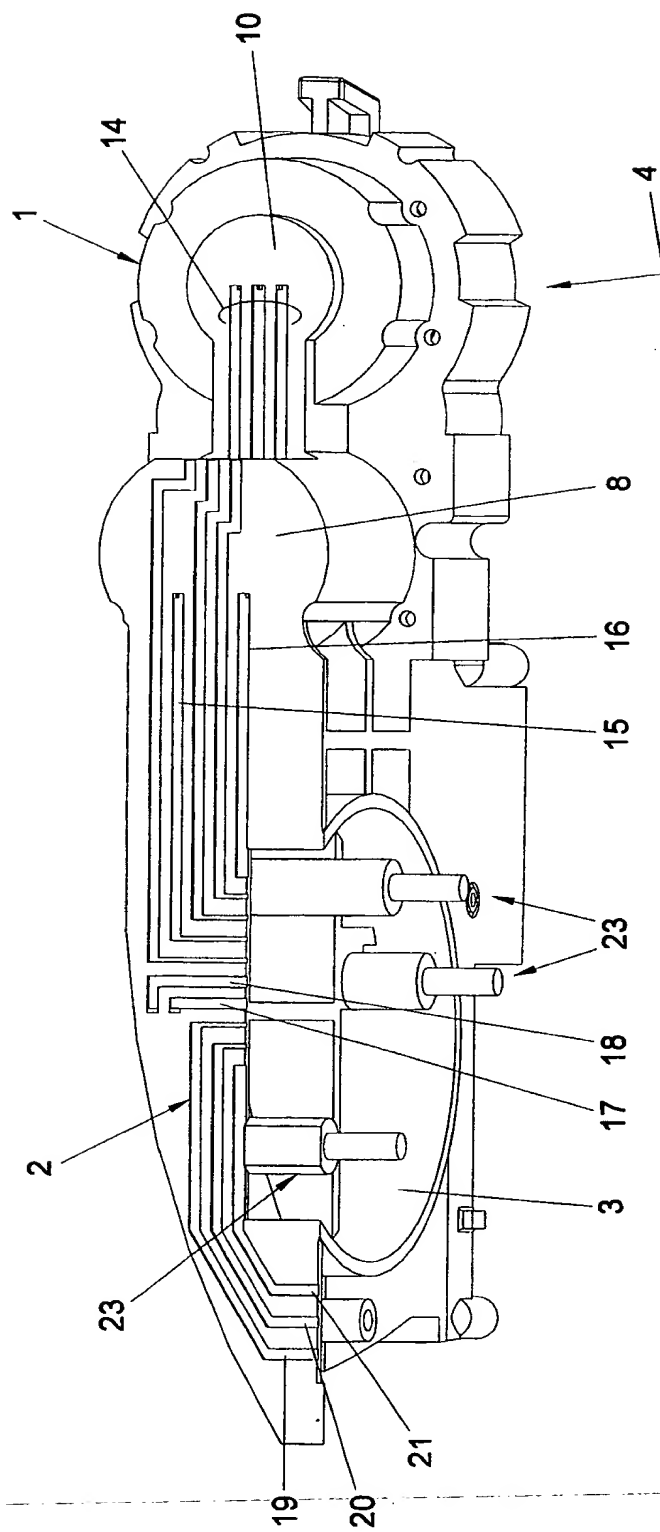


Fig. 2

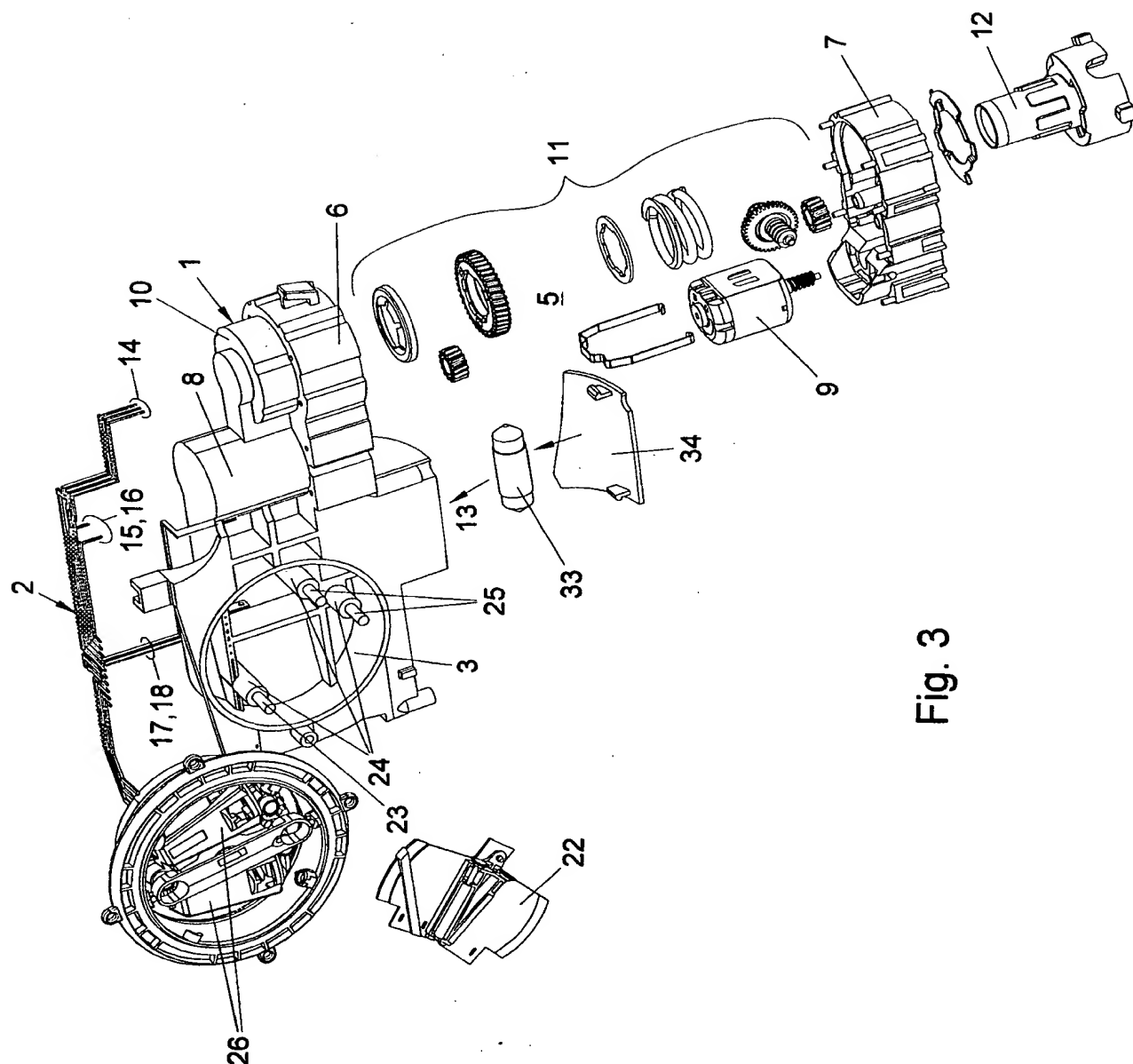


Fig. 3

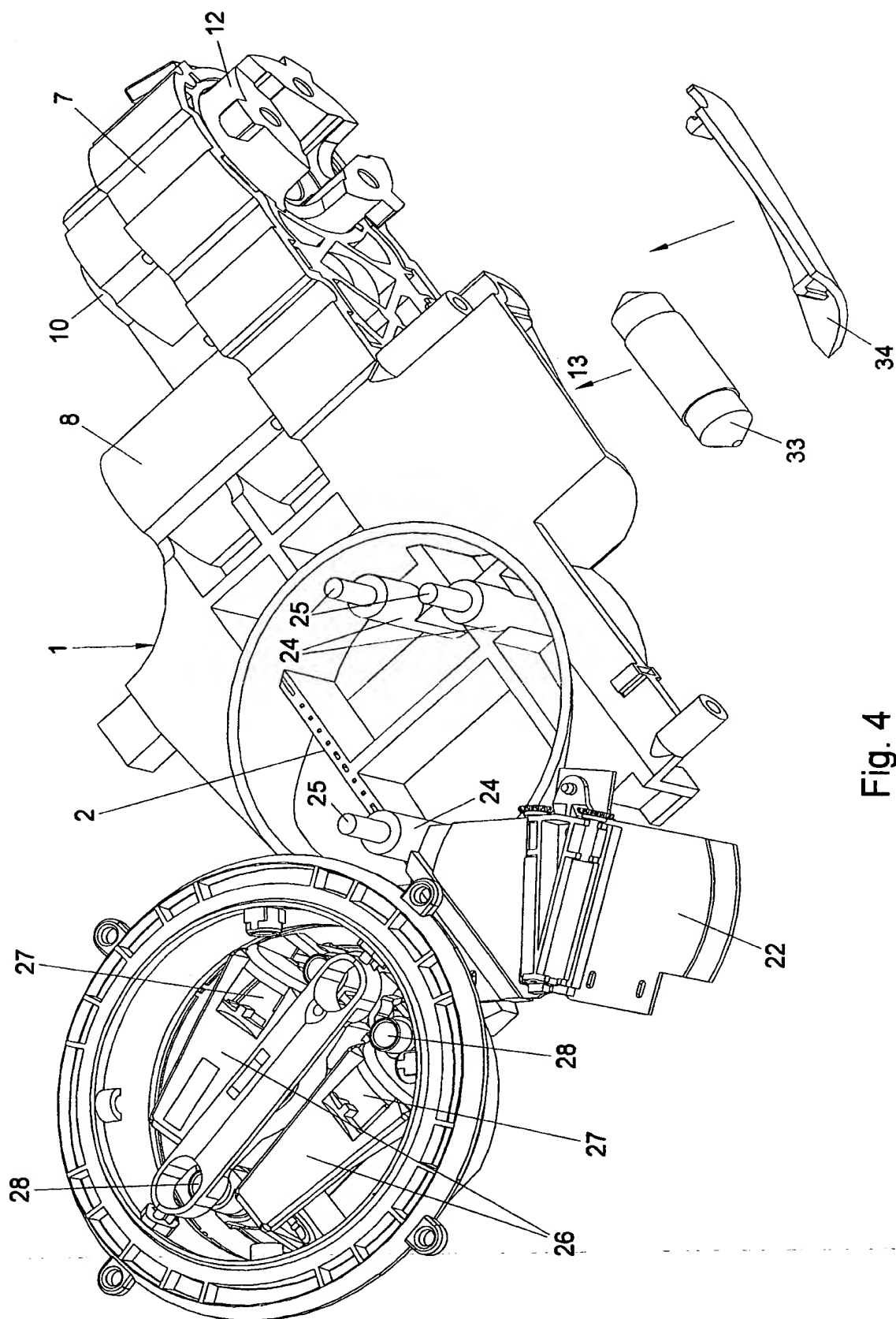


Fig. 4

INTERNATIONAL SEARCH REPORT

International Application No

PCT/NL 99/00685

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 B60R1/06

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 B60R

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	DE 40 11 934 A (AISIN SEIKI) 31 October 1990 (1990-10-31) the whole document	1-8
Y	EP 0 845 390 A (DONNELLY) 3 June 1998 (1998-06-03) the whole document	1-14, 16, 18, 19
Y	EP 0 274 848 A (BRITAX) 20 July 1988 (1988-07-20) column 2, line 23-28	9
Y	EP 0 476 600 A (MEKRA) 25 March 1992 (1992-03-25) abstract	10
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

1 February 2000

Date of mailing of the international search report

08/02/2000

Name and mailing address of the ISA

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NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Knops, J

INTERNATIONAL SEARCH REPORT

International Application No

PCT/NL 99/00685

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	DE 44 22 572 A (REUM) 4 January 1996 (1996-01-04) the whole document ---	11-13
Y	DE 28 13 316 C (HOHE) 23 October 1986 (1986-10-23) the whole document ---	14, 16
Y	WO 90 10555 A (ROLTRAMORSE) 20 September 1990 (1990-09-20) abstract ---	18, 19
A	EP 0 531 944 A (GILARDINI) 17 March 1993 (1993-03-17) ---	
A	DE 42 19 930 A (TOKAI RIKI DENKI) 24 December 1992 (1992-12-24) ---	
A	DE 39 23 932 A (MAGNA AUTECA) 24 January 1991 (1991-01-24) -----	

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/NL 99/00685

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
DE 4011934	A	31-10-1990	JP 2290752 A US 5305144 A	30-11-1990 19-04-1994
EP 845390	A	03-06-1998	DE 29620775 U US 6007222 A	26-03-1998 28-12-1999
EP 274848	A	20-07-1988	JP 2854862 B JP 63159155 A US 4871953 A	10-02-1999 02-07-1988 03-10-1989
EP 476600	A	25-03-1992	DE 4029890 A US 5196965 A	26-03-1992 23-03-1993
DE 4422572	A	04-01-1996	NONE	
DE 2813316	C	04-10-1979	DE 2813316 A	04-10-1979
WO 9010555	A	20-09-1990	IT 216962 Z	21-10-1991
EP 531944	A	17-03-1993	IT 1250015 B	30-03-1995
DE 4219930	A	24-12-1992	GB 2256839 A,B US 5268795 A	23-12-1992 07-12-1993
DE 3923932	A	24-01-1991	NONE	

PATENT COOPERATION TREATY

PCT

From the INTERNATIONAL BUREAU

NOTICE INFORMING THE APPLICANT OF THE
COMMUNICATION OF THE INTERNATIONAL
APPLICATION TO THE DESIGNATED OFFICES(PCT Rule 47.1(c), third sentence)
310-451-2000

To:

OTTEVANGERS, S., U.
Vereenigde Octrooibureaux
Nieuwe Parklaan 97
NL-2587 BN The Hague
PAYS-BAS

Date of mailing (day/month/year) ... 18 May 2000 (18.05.00)	Bericht gezonden aan dd. 9-6-2000
Applicant's or agent's file reference P10088PC00	MAP P10088PC00

IMPORTANT NOTICE

International application No. PCT/NL99/00685	International filing date (day/month/year) 09 November 1999 (09.11.99)	Priority date (day/month/year) 09 November 1998 (09.11.98)
Applicant IKU HOLDING MONTFOORT B.V. et al		

1. Notice is hereby given that the International Bureau has communicated, as provided in Article 20, the international application to the following designated Offices on the date indicated above as the date of mailing of this Notice:
AU,CN,JP,KP,KR,MA,US

In accordance with Rule 47.1(c), third sentence, those Offices will accept the present Notice as conclusive evidence that the communication of the international application has duly taken place on the date of mailing indicated above and no copy of the international application is required to be furnished by the applicant to the designated Office(s).

2. The following designated Offices have waived the requirement for such a communication at this time:
AL,AM,AP,AT,AZ,BA,BB,BG,BR,BY,CA,CH,CR,CU,CZ,DE,DK,DM,EA,EE,EP,ES,FI,GB,GD,GE,GH,
GM,HR,HU,ID,IL,IN,IS,KE,KG,KZ,LC,LK,LR,LS,LT,LU,LV,MD,MG,MK,MN,MW,MX,NO,NZ,OA,PL,
PT,RO,RU,SD,SE,SG,SI,SK,SL,TJ,TM,TR,TT,TZ,UA,UG,UZ,VN,YU,ZW
The communication will be made to those Offices only upon their request. Furthermore, those Offices do not require the applicant to furnish a copy of the international application (Rule 49.1(a-bis)).

3. Enclosed with this Notice is a copy of the international application as published by the International Bureau on
18 May 2000 (18.05.00) under No. WO 00/27670

REMINDER REGARDING CHAPTER II (Article 31(2)(a) and Rule 54.2)

If the applicant wishes to postpone entry into the national phase until 30 months (or later in some Offices) from the priority date, a demand for international preliminary examination must be filed with the competent International Preliminary Examining Authority before the expiration of 19 months from the priority date.

It is the applicant's sole responsibility to monitor the 19-month time limit.

Note that only an applicant who is a national or resident of a PCT Contracting State which is bound by Chapter II has the right to file a demand for international preliminary examination.

REMINDER REGARDING ENTRY INTO THE NATIONAL PHASE (Article 22 or 39(1))

If the applicant wishes to proceed with the international application in the national phase, he must, within 20 months or 30 months, or later in some Offices, perform the acts referred to therein before each designated or elected Office.

For further important information on the time limits and acts to be performed for entering the national phase, see the Annex to Form PCT/IB/301 (Notification of Receipt of Record Copy) and Volume II of the PCT Applicant's Guide.

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer J. Zahra
Facsimile No. (41-22) 740.14.35	Telephone No. (41-22) 338.83.38

PATENT COOPERATION TREATY

TC

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

9-5-2001 9-

PCT

VEREENIGDE
Nieuwe Parklaan 97
NL-2587 BN The Hague
PAYS-BAS

2 JUNI, 2000

NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL PRELIMINARY
EXAMINATION REPORT
(PCT Rule 71.1)Bericht gezonden
aan dDate of mailing
(day/month/year)

23.06.2000

Applicant's or agent's file reference

PCT/NL99/00685

IMPORTANT NOTIFICATION

International application No.
PCT/NL99/00685International filing date (day/month/year)
09/11/1999Priority date (day/month/year)
09/11/1998

Applicant

IKU HOLDING MONTFOORT B.V. et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.
4. **REMINDER**

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA



European Patent Office
D-80298 Munich
Tel. +49 89 2399 - 0 Tx: 529656 epmu d
Fax: +49 89 2399 - 4465

Authorized officer

Poquet Oliver, R

Tel. +49 89 2399-2911



PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P10088PC00	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/NL99/00685	International filing date (day/month/year) 09/11/1999	Priority date (day/month/year) 09/11/1998
International Patent Classification (IPC) or national classification and IPC B60R1/06		
Applicant IKU HOLDING MONTFOORT B.V. et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 5 sheets, including this cover sheet.

- ☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 05/04/2000	Date of completion of this report 23.08.2000
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523658 epmu d Fax: +49 89 2399 - 4465	Authorized officer Bolte, U Telephone No. +49 89 2399 7431 

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/NL99/00685

I. Basis of the report

1. This report has been drawn on the basis of *(substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.)*:

Description, pages:

1-11 as originally filed

Claims, No.:

1-19 as originally filed

Drawings, sheets:

1/4-4/4 as originally filed

2. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

4. Additional observations, if necessary:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/NL99/00685

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. Statement**

Novelty (N)	Yes:	Claims	1-19
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-19
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-19
	No:	Claims	

2. Citations and explanations**see separate sheet****VII. Certain defects in the international application**

The following defects in the form or contents of the international application have been noted:

see separate sheet

INTERNATIONAL PRELIMINARY

International application No. PCT/NL99/00685

EXAMINATION REPORT - SEPARATE SHEET

Re Item V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

State of the art:

Document (D1) DE 40 11 934 A cited in the search report forms the relevant state of the art. It discloses an electrically controlled mirror for a motor vehicle provided with a support (1) to be mounted on a vehicle for adjusting the mirror housing (4) relative to the support (1) and the mirror plate (10) relative to the mirror housing (4), and with any means for accommodating one or more other functions in the mirror housing (4), the mirror housing comprising one single build-up element (2) on which the above means are provided.

Problem:

The highly complex build-up element having several holes and hollow spaces to accommodate the additional functions is to be made more rigid and more resistant.

Solution:

The problem is solved by integrating a reinforcement element into the build-up element.

Novelty:

The subject-matter of the present application is considered as new (Art. 33(2) PCT), as no prior art describes all subject-matter of independent claim 1 in combination.

Inventive step:

The subject-matter of the present application is considered as inventive (Art. 33(3) PCT), as none of the opposing documents gives a hint to integrate a reinforcement element into the build-up element. DE 28 13 316 A (D2) shows a separate reinforcement plate in a vehicle mirror.

Industrial applicability:

The subject-matter of the present application is considered as industrially applicable (Art. 33(4) PCT) as it is used in the automobile industry.

INTERNATIONAL PRELIMINARY

International application No. PCT/NL99/00685

EXAMINATION REPORT - SEPARATE SHEET

Re Item VII**Certain defects in the international application****- Concerning the claims**

1. The features of the claims are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT).
2. Although claim 1 is drafted in the two-part form the feature that the mirror housing comprises one single build-up element on which the diverse functional elements (menas) are mounted is incorrectly placed in the characterising portion, as it is disclosed in document D1 in combination with the features placed in the preamble (Rule 6.3(b) PCT).

- Concerning of the description

3. Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the document D1 is not mentioned in the description, nor is this document identified therein. It is not stated in the description that document D1 forms the closest prior art from which the invention departs and which forms the base for the preamble of independent claim 1.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference P10088PC00	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/NL 99/ 00685	International filing date (day/month/year) 09/11/1999	(Earliest) Priority Date (day/month/year) 09/11/1998
Applicant IKU HOLDING MONTFOORT B.V. et al.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.



It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.



the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :



contained in the international application in written form.



filed together with the international application in computer readable form.



furnished subsequently to this Authority in written form.



furnished subsequently to this Authority in computer readable form.



the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.



the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,



the text is approved as submitted by the applicant.



the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,



the text is approved as submitted by the applicant.



the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.



as suggested by the applicant.



because the applicant failed to suggest a figure.



because this figure better characterizes the invention.

1



None of the figures.

INTERNATIONAL SEARCH REPORT

International Application No

NL 99/00685

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 B60R1/06

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 B60R

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	DE 40 11 934 A (AISIN SEIKI) 31 October 1990 (1990-10-31) the whole document ---	1-8
Y	EP 0 845 390 A (DONNELLY) 3 June 1998 (1998-06-03) the whole document ---	1-14, 16, 18, 19
Y	EP 0 274 848 A (BRITAX) 20 July 1988 (1988-07-20) column 2, line 23-28 ---	9
Y	EP 0 476 600 A (MEKRA) 25 March 1992 (1992-03-25) abstract ---	10
	--- -/--	

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- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the international search

Date of mailing of the international search report

1 February 2000

08/02/2000

Name and mailing address of the ISA

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Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Knops, J

NL 99/00685

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Form PCT/ISA/210 (continuation of second sheet) (July 1992)